

MCA Practice Problems Worksheet #1

(ratio and proportion and number sense)

Key
Name _____

1. Faye wants to know the height of her school building. On a sunny day, she measures the shadow of the building to be 12 feet. At the same time, she measures the shadow cast by a 5-foot statue to be 2 feet. How tall is her school building? **30 ft**

2. If it takes 7 cups of flour to make 4 loaves of bread, how many cups of flour is needed to make 10 loaves of bread?

17.5 cups

3. Out of 248 seniors, 112 are boys. What is the ratio of boys to the number of girls?

14:17

4. In 1908, John Herlinger of Austria walked 1400 kilometers from Vienna to Paris on his hands. The journey took 55 days. What was his distance per day?

25.45 km/day

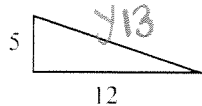
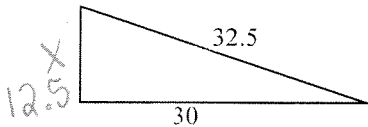
5. At the local grocery store, 2 pineapples cost \$2.78. How much do 7 pineapples cost?

\$9.73

6. Two inches represents 150 miles on a map. The actual distance from Smalltown to Bigtown is 675 miles. In inches, how far apart are the cities on the map?

9 inches

7. These two triangles are similar. Find the lengths of the missing sides.



8. If you triple the lengths of the sides of a square, by what factor is the area increased?

$3^2 = 9$

9. A dozen eggs sells for \$4.20. What is the unit cost per egg?

\$0.35/egg

10. Which costs the least per ounce: a 20 oz. Soda for \$0.60, a 68 oz. soda for \$2.38, or a 100 oz. soda for \$3.32?

\$0.03/oz

\$0.035/oz

\$0.0332/oz

11. Tim designs web pages. He charges \$500 to start each site, and an additional \$50 for every hour needed to keep it updated. If Tim is paid \$1000, how many additional hours did he spend keeping it updated?

- a. 5 hours **b. 10 hours** c. 50 hours d. 100 hours

12. The price of a set of tires at Tire Mart is \$420.00. One payment plan is to make monthly payments of \$39.50 for a year. Customers who choose this payment plan pay interest. What percent of the price of the tires is interest?

- e. 8.3% f. 9.4% g. 11.4% **h. 12.9%**

13. What is the value of $6 \cdot \sqrt{25-16} + 10 \div 2$?

- a. 11 b. 14 **c. 23** d. 59

14. Rosa has to pay the first \$100 of her medical expenses each year before she qualifies for her insurance company to begin paying. After paying the \$100 “deductible,” her insurance company will pay 80% of her medical expenses. This year her total medical expenses came to \$960.00. Which expression below shows how much her insurance company will pay?

- e. $0.80(960 - 100)$ f. $100 + (960 \div 0.80)$ g. $960(100 - 0.80)$ h. $0.80(960 + 100)$

15. What is the value of $-2m^6 \div 4m^3$ when $m = -2$?

- a. -16 b. -4 c. 4 d. 16

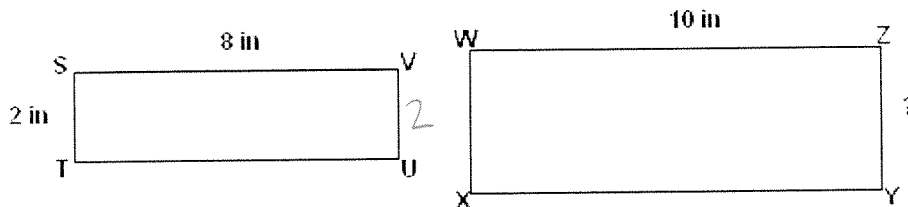
16. The animal keeper feeds the monkey 5 pounds of bananas per day. The gorilla eats 4 times as many bananas as the monkey. How many pounds of bananas does the animal keeper need to feed both animals for a week?

- e. 25 pounds f. 100 pounds g. 145 pounds h. 175 pounds

17. An inch worm slithers 8 inches in 3 minutes. How far does the inch worm slither in 5 minutes?

- a. 10 inches b. 12 inches c. $13\frac{1}{3}$ inches d. $14\frac{1}{2}$ inches

18. Rectangles STUV and WXYZ are similar. What is the length of side \overline{YZ} ?



- e. 2 inches f. 2.5 inches g. 4 inches h. 4.5 inches

19. Last month the average price for a gallon was \$3.25. This month the average cost is \$3.68. Find the percent of increase for a gallon of gas.

- a. 13.2%
b. 11.7%
c. 88.3%
d. 43%

20. Carlos ate $\frac{1}{4}$ of a cake. Then, Jean ate $\frac{1}{3}$ of what was left. When both are done eating, what fraction of the cake is now left?

- a. $\frac{1}{12}$ b. $\frac{5}{12}$ c. $\frac{1}{2}$ d. $\frac{5}{7}$

21. Which is a cheaper plan for sending an average of 560 text messages per month:

Plan “A” - \$7.50 flat fee per month for 400 “free” messages & \$0.15 per message after that
Plan “B” - \$10.00 flat fee per month for 500 “free” messages & \$0.25 per message after that

- a. Plan “A” is cheaper by \$6.50 b. Plan “A” is cheaper by \$18.50
c. Plan “B” is cheaper by \$8.50 d. Plan “B” is cheaper by \$6.50

22. A cab ride in Minneapolis costs \$3.50 for the first $\frac{1}{4}$ mile, and \$0.30 for each $\frac{1}{4}$ mile after that. How much would a 14 mile cab ride cost?

- a. \$20.00 b. \$7.40 c. \$20.30 d. \$29.60